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A.D. 1887, 13th SEPTEMBER. N° 12,392.  
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### PROVISIONAL SPECIFICATION.

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#### Improvements in Apparatus for Disinfection.

I, GILLIS VAN OVERBEEK DE MEYER, Doctor of Medicine and Professor of Hygiene at the University of Utrecht, Kingdom of the Netherlands do hereby declare the nature of this invention to be as follows :—

The objects of my invention are :

5 I. To secure absolute destruction of the germs of contagion in the articles to be disinfected.

10 II. To avoid the disadvantages appertaining to the apparatus now in use, *viz.*, the gradual destruction by the use of steam of high pressure, or air heated to a high temperature, of those articles subjected more than once to the disinfecting process ; the too speedy escape of the steam if introduced at the bottom of the disinfecting chamber and allowed to escape at the top, thereby rendering it impossible to obtain the same uniform temperature in all parts ; the necessity of employing a skilled mechanic to attend to the apparatus, &c.

15 III. To secure a constant uniform temperature in all parts of the apparatus & thereby to avoid condensation of the steam in any part of the disinfecting chamber & the necessity of drying the articles disinfected.

IV. To shorten the time required for disinfection.

20 In order to carry out my invention, I construct an apparatus consisting of an inner chamber of suitable form, dimensions & material (called hereafter the disinfecting chamber) & enclose it in a chamber (called the outer chamber) of approximately the same shape but slightly larger, so that there is a small space between the disinfecting & outer chambers.

25 At one end I make an opening through both chambers to permit of articles being placed in the disinfecting chamber, provided with an airtight door, covered with some suitable non-heat-conducting material.

In the ceiling of the disinfecting chamber I construct an opening, so that steam generated in, or introduced into, the space between the chambers has free ingress into the disinfecting chamber. To carry off the steam thus introduced, I make a second opening in the floor of the disinfecting chamber & connect this hole with the outer

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*De Meyer's Improvements in Apparatus for Disinfection.*

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atmosphere, or a chimney, by a pipe passing through the outer chamber. Steam generated in, or introduced into, the space between the chambers, will first surround the inner chamber & then pass through the hole in the ceiling into that chamber & after traversing its whole space in a downward direction (whereby the spread of the steam is secured) will escape through the hole in the floor. It will also be evident that there being a free passage for the steam from the place of generation, or introduction (*viz.*, the space between the chambers) to the outer atmosphere, there can never be a sufficient steam pressure to injure articles placed in the disinfecting chamber. On the other hand, in order to prevent too speedy egress of the steam & thus to retain it a sufficient time in the disinfecting chamber & enable it to accomplish its work of destroying the germs of contagion, I make the opening of ingress at the top of the disinfecting chamber larger than that of egress in the floor, whereby the steam is retained long enough in the disinfecting chamber to secure penetration of even the most voluminous articles. 5 10

As shown hereafter, an additional precaution to prevent injury to the articles to be disinfected is taken by fixing the maximum heat of the whole of both chambers at 101° to 102° Celsius = 214° to 216° Fahrenheit. 15

In order to generate the necessary steam and at the same time to secure an equal uniform temperature throughout the disinfecting chamber, I fill the space between the inner and the outer chambers with water to about half the height of the inner chamber and heat this to the required temperature by means of a furnace placed underneath the apparatus. 20

The inner chamber being in this manner surrounded by water & steam, which can, by regulating the furnace, be maintained at an uniform temperature, an equal temperature can be maintained throughout the disinfecting chamber & condensation thereby entirely prevented. 25

V. O. DE MEYER.

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## COMPLETE SPECIFICATION.

## Improvements in Apparatus for Disinfection.

I, GILLIS VAN OVERBEEK DE MEYER, Doctor of Medicine and Professor of Hygiene at the University of Utrecht, Kingdom of the Netherlands do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 In order to carry out my invention I construct a suitable watertight chamber, *efgh*, of cylindrical, rectangular, or other desired shape, having a door *tt*, by which the articles to be disinfected can be inserted in the apparatus, or removed therefrom.

This chamber I enclose in a second chamber, of approximately the same shape, but slightly larger, lettered *abcd* in the drawings.

10 In the ceiling of the inner, or disinfecting, chamber *efgh*, I construct an opening *k*, so that steam generated between the two chambers can enter the inner chamber freely. To carry off the steam thus introduced, I make a second opening *l* in the floor, or bottom, of the inner chamber, into which I insert a pipe *m*, passing through the wall of the outer chamber.

15 It will thus be evident that if steam be generated between the two chambers, which can be done by filling the space with water about half full (up to *p*) and heating the apparatus by a hearth placed underneath it, the steam thus generated will find its way through *k* into the inner chamber. Having a tendency to rise, it will then fill every part of the inner chamber, until the latter becomes so full that it is forced to escape  
20 through the opening *l* and the tube *m*.

It will also be seen that the whole of the disinfecting space *efgh* being surrounded by a jacket of boiling water and steam, an equal uniform temperature is obtained throughout the apparatus and condensation thereby prevented.

25 Instead of one door, two doors can be used, one for inserting and one for removing the articles treated. If a slight pressure of steam be desired in the disinfecting chamber, the same can be obtained by closing the opening *l* by a spring valve, which will allow the steam to escape upon a certain pressure being reached.

Having now particularly described and ascertained the nature of my said invention & in what manner the same is to be performed, I declare that what I claim is:—

30 I. The manufacture and use of a disinfecting apparatus in which the fluid generating the agent for the disinfecting serves at the same time with the generated agent, to form a jacket round the disinfecting space, so that the latter is kept at the same temperature.

35 II. In disinfecting apparatus, the combination of the jacket mentioned in claim I with the arrangement described, by means of which the steam is compelled to pass through the disinfecting space in a downward direction.

Dated this 5th day of June 1888.

GEORGE COWLEY BINGHAM,  
Agent for Applicant.

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DE MEYER'S COMPLETE SPECIFICATION.

(1 SHEET)

[This Drawing is a reproduction of the Original on a reduced scale.]

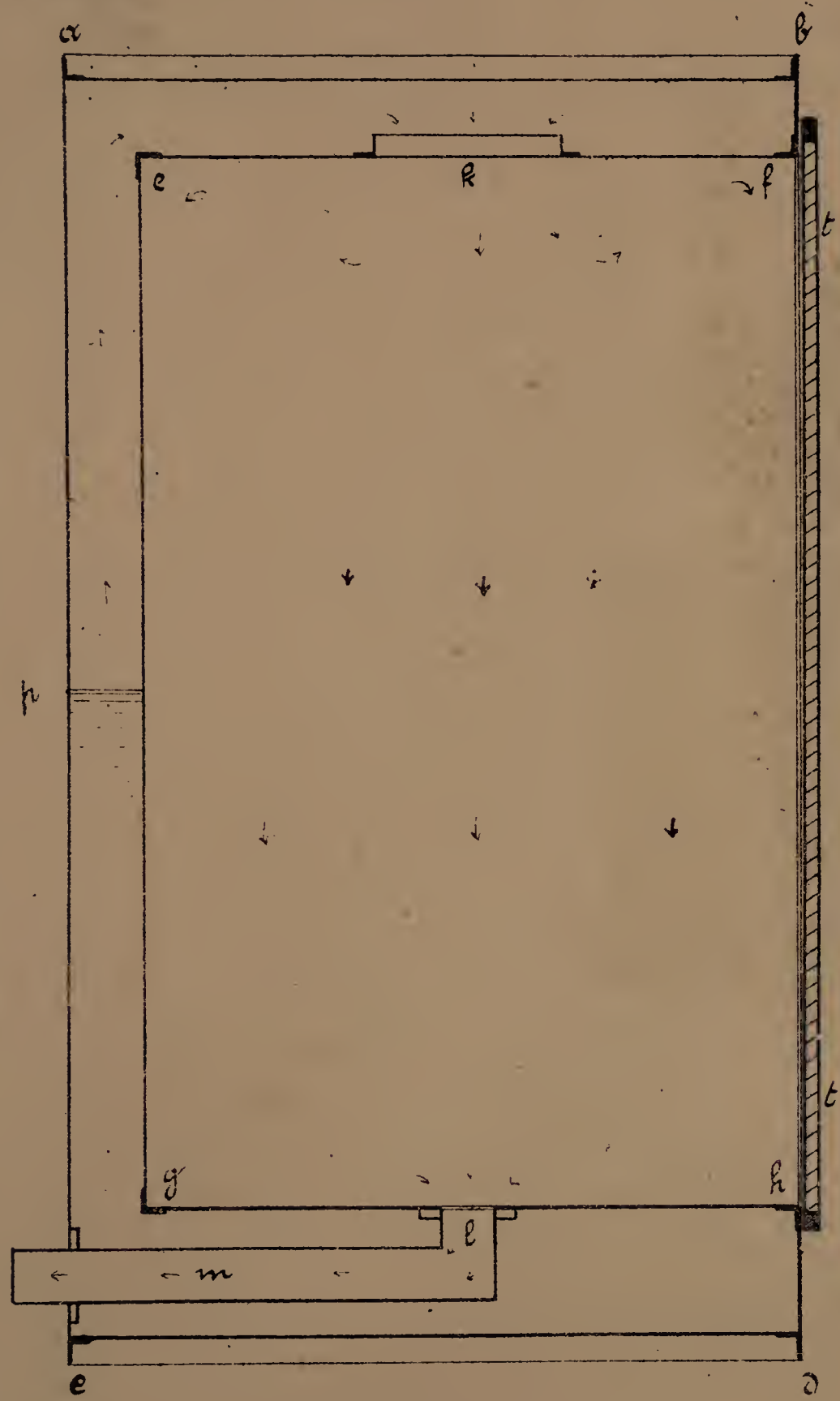


Fig. 1  
Side Section

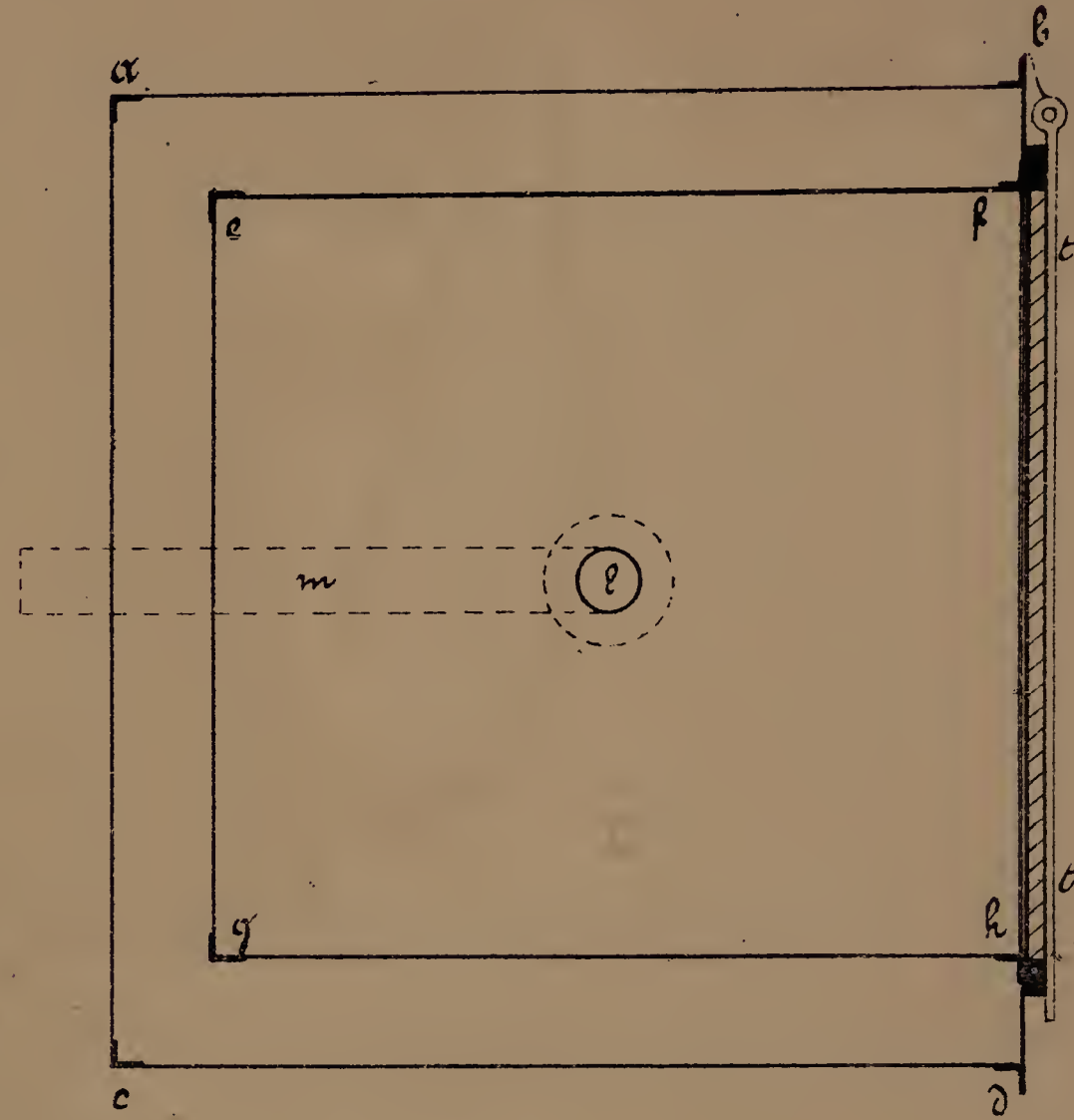


Fig. 2  
Horizontal Section.

